

Microgram

Bulletin

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NOVEMBER 2003

- INTELLIGENCE ALERT -

KETAMINE IN WINE BOTTLES IN EAST LANSING, MICHIGAN

The Michigan State Police Lansing Forensic Laboratory recently received three “Sutter Home” wine bottles each containing approximately 750 milliliters of clear, slightly yellow liquid, suspected *gamma*-hydroxybutyrate (GHB) or *gamma*-butyrolactone (GBL) (see Photo 1). The bottles were seized at a common carrier facility in East Lansing by the Tri-County Metro Narcotics Squad (Michigan State Police Task Force). Analysis of the liquid from one randomly selected bottle by GC/MS and FT-IR, however, indicated not GHB or GBL but rather ketamine HCl. A crude gravimetric quantitation and recrystallization showed that the approximate 750 milliliters in the sampled bottle contained 68.05 grams of ketamine HCl. The other two bottles were not analyzed. This is the first encounter with ketamine solutions in wine bottles by the Laboratory.



Photo 1

- INTELLIGENCE ALERT -

OPIUM “TOOTSIE ROLLS” INSIDE A CASKET FROM THAILAND

The DEA North Central Laboratory (Chicago, Illinois) recently received 38 rectangular packages consisting of clear packaging tape over a brown leafy substance over flat rolled pieces of plastic containing a black tacky substance, suspected opium (see Photos 2 and 3). The packets (which are locally known as “Tootsie Rolls”) varied in size from 1 x 1 x 1 inch to 1 x 1 x 16 inches, and were originally seized by U.S. Customs Service Inspectors from a casket arriving at the Los Angeles International Airport on a flight from Thailand. The casket was control delivered to an individual in St. Paul, Minnesota by the DEA Minneapolis-St. Paul Resident Office, prior to submission to the Laboratory. Analysis of the material (total net mass 5.960 kilograms, not including wrappings and packaging) by color testing, GC, and MS indicated meconin, codeine, morphine, thebaine, and papaverine, confirming opium. The brown leafy substance was tentatively identified as bamboo leaves. These packets are regularly seized by local law enforcement personnel from Hmong expatriates residing in the upper Midwest; however, this was the first encounter with this smuggling technique by the North Central Laboratory.



Photo 2



Photo 3

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- INTELLIGENCE ALERT -

WET COCAINE IN LOTION BOTTLES FROM JAMAICA

The DEA Mid-Atlantic Laboratory (Largo, Maryland) recently received five different varieties of “lotion” bottles, each containing a plastic bag of pasty white material, suspected wet cocaine (see Photo 4, next page). The exhibits were seized by the United States Customs Service at the Baltimore-Washington International (BWI) Airport. Analysis of the exhibit (total net mass from the bottles was 881.4 grams) by color testing, GC, GC/MS, and FT-IR confirmed 59 percent cocaine hydrochloride. This was the laboratory’s first encounter with this type of smuggling technique.



Photo 4

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- INTELLIGENCE BRIEF -

FENTANYL TABLETS IN POLK COUNTY, FLORIDA

The Florida Department of Law Enforcement Tampa Crime Laboratory recently received a polydrug submission from the Polk County Sheriff's Office that included two "home-made", light green tablets, allegedly a mixture "kind of like Soma and Valium". The tablets were seized during a probation check from a local drug user who is a so-called "Mikey" (a volunteer "guinea pig" who is willing to "test" (by self-administration) illicit drugs and drug mixtures of virtually any type).

Other drugs seized in the same case included methamphetamine residue on charred foil, lorazepam powder and tablet fragments, a methadone tablet, and possible tramadone tablets (the latter were not analyzed, but were tentatively identified by tablet markings). The home-made tablets were unmarked, half-scored on one face, 12 millimeters in diameter, and had an average weight of 600 milligrams (see Photo 5). Preliminary analysis of a chloroform extract of one quarter of a tablet (from a 5% NaHC03 solution) by GC/MS suggested fentanyl. Analysis of a methanol extract (1 mL) of the remaining three-fourths of the tablet by GC and GC/MS confirmed fentanyl (quantitation not performed). This is the first time a tablet preparation of fentanyl has been encountered by the Laboratory.



Photo 5

- INTELLIGENCE BRIEF -

**STANAZOLOL TABLETS, KETAMINE, AND NANDRALONE
IN NEWARK, CALIFORNIA**

The Alameda County Sheriff's Office Criminalistics Laboratory (San Leandro, California) recently received an interesting polydrug submission consisting of five pentagonal red tablets, suspected ecstasy, and two small cardboard boxes each containing a factory-sealed amber bottle, labelled in Spanish as containing ketamine and nandralone, respectively. The exhibits were seized pursuant to a consent search in Newark, California by the Fremont Police Department (Newark is located a few miles southwest of Fremont). The tablets measured approximately 4 millimeters on each side, and had a "T" logo on one side and a half-score on the other side (see Photo 6). Analysis by GC-MS, however, indicated not MDMA but rather stanozolol (not quantitated). The first box was marked: "...Ttokkyo Centenido Neto: 10 mL...Kettamina 1000...", and the factory-sealed bottle within was similarly marked "...Kettamina 1000..." (see Photo 7). Analysis of the liquid contents by FTIR/ATR and GC-MS confirmed ketamine (not quantitated). The second box was marked: "...Anabolico Esteroido Nandrolona 300 L.A....Contenido neto 10 ml..." and the factory-sealed bottle within was similarly marked: "...Anabolico Esteroido Contenido neto 10 ml. Nandrolona 300 L.A...." (see Photo 8); the fine print on both the box and bottle indicated that this was also a product of Ttokkyo Laboratories. Analysis of the liquid contents by GC-MS confirmed nandrolone decanoate (not quantitated). This is the first time any of these products have been encountered at the Laboratory. As a side note, Ttokkyo Laboratories (a notorious source of ketamine and anabolic steroids, situated in various locales in Mexico) was shut down by local authorities in October 2002 (for additional information, see: <http://www.usdoj.gov/usao/cas/cas21002.1.htm>)

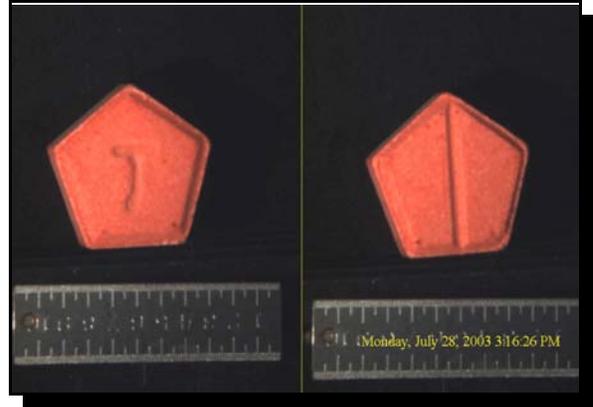


Photo 6



Photo 7



Photo 8

- INTELLIGENCE BRIEF -

**GREENISH COLORED MORPHINE POWDERS AT THE U.S.
PENITENTIARY IN BEAUMONT, TEXAS**

The Jefferson County Regional Crime Laboratory (Beaumont, Texas) recently received two separate submissions of unknown greenish colored powders inside a small plastic bags, total net masses 0.63 grams and 0.83 grams, respectively (photos not taken). The exhibits had been seized by security personnel at the prison, and had been secreted within Muscle Fit and Maxim magazines, respectively, for attempted smuggling to inmates (further details not available). Analysis by spot tests and GC-MS indicated morphine in both exhibits (not quantitated). This was the first submission of greenish colored morphine to the Crime Laboratory.

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- INTELLIGENCE BRIEF -

“ICE” *l*-METHAMPHETAMINE HCl ON THE WEST COAST

The DEA Western Laboratory (San Francisco, California) recently received a 3.3 gram sample of clear crystalline material, suspected “ICE” methamphetamine (circumstances of seizure not provided due to ongoing investigation). “ICE” methamphetamine is (by definition) high-purity *d*-methamphetamine hydrochloride; it is usually encountered as large, clear or white-clear crystals, and is typically ingested by smoking. Analysis by Marquis color testing and GC-FID of the N-trifluoroacetyl-L-prolyl derivative, however, indicated not the *d*- isomer but rather 99 percent *l*-methamphetamine hydrochloride. No synthetic route information was developed during the analyses. The



Photo 9

laboratory later received a 2670 gram submission from the same case, packaged in six ziplock plastic bags that were further sealed in vacuum-packed, heat-sealed plastic bags. The crystalline material was again clear and the individual crystals were large [see Photo 9]. Analysis indicated that four of the bags contained mixtures of *d*- and *l*-methamphetamine hydrochloride in roughly a 3:1 ratio (favoring the *d*- isomer). The remaining two bags were found to have a similar mixture, but in roughly a 1:10 ratio (favoring the *l*- isomer). Quantitative analysis of a composite sample from all six bags determined the overall purity to be 96 percent. The DEA laboratory system has encountered a number of similar samples over the past two years.

[Editor’s Notes: The literature suggests that *d*-methamphetamine is between five and ten times more potent than the *l*- isomer; however, this does not correspond to differences in efficacy or abuse potential, since abusers can compensate merely by taking more of the *l*- isomer.]

- INTELLIGENCE BRIEF -

ANALYSIS OF THE POPPY CAPSULES FROM THE SIERRA NATIONAL FOREST SEIZURE

[Editor's Preface: The referenced seizure occurred in June 2003, and was reported in detail in the August and September 2003 issues of *Microgram Bulletin*.]

The DEA Special Testing and Research Laboratory (Dulles, Virginia) recently received 18 opium poppy capsules from the June 2003 seizure of the large opium poppy field in the Sierra National Forest, California. [Note: According to the National Forestry Service, there were 40,000 to 50,000 plants in the field, with an average height of three feet, and three to five capsules per plant (see Photo 10). All capsules showed vertical lancing marks on their exteriors (see Photo 11, showing a lanced capsule at the field, bleeding latex).] The capsules (total net mass 15.1 grams) had been thoroughly dried to prevent natural decomposition during transit, and (as a result) several of them had burst open and dispersed seeds into the evidence envelope prior to analysis. The average diameter of the capsules was found to be 19.1 mm and the average height was 20.8 mm. It was not determined whether these capsules represented 'typical' capsules in the field; however, the capsules forwarded to the laboratory were relatively small compared to typical opium poppies from other opium producing regions in the world.



Photo 10



Photo 11

The analysis started by separating the capsules by cutting them off just above the petal scar (i.e., where the flower petals were once attached). The seeds were then removed from the capsules, and the remaining parts of the capsules (mostly hull) were crushed into a uniform mass of small fragments. Analysis of an extract of the hull material by GC/MS (with quantitation by CE) confirmed 0.4 percent morphine, 0.1 percent codeine, 0.06 percent thebaine, 0.2 percent noscapine, and 0.08 percent papaverine, all calculated at the base. This corresponded to 2 milligrams of morphine base per capsule, or roughly 360 grams of morphine for the entire field. It is unknown whether the field was being cultivated for production of opium gum (for which there is a growing market in the U.S.) or for eventual production of heroin.

LAST CALL FOR EMAIL ADDRESSES

The following list (alphabetized by country) represents non-U.S. organizations that have dropped off the *Microgram* subscription e-net. Virtually all of these organizations failed to respond to last year's multiple subscription re-validation requests. Many represent offices or laboratories that closed or moved years or even decades ago. A few provided invalid email addresses, or provided email addresses that have since become invalid.

The Office of Forensic Sciences requests your assistance in tracking down these organizations, and (if they are still interested in receiving *Microgram Bulletin* and *Microgram Journal*) asking them to provide an accurate email address to the *Microgram* Editor. Note that personal names and/or street addresses have been redacted for security reasons; however, the provided information should be adequate to identify those organizations that are still operational. If the office or laboratory has closed or consolidated, or is operational but simply not interested in remaining on the subscription e-net, that information would also be appreciated. All responses should be emailed to the Editor at: microgram_editor@mailsnare.net

All organizations for which no response is received will be deleted from the subscription database at the end of this year.

Office 1	Office 2	Misc.	City/Code	Country
* Policia Federal Argentina	Chemical Laboratory		Bahia Blanca 8000	Argentina
* Capital Fed			Yerbal 1095 PB DTO A	Argentina
* Policia Federal Argentina			Neuquen 8300	Argentina
* Policia Federal Argentina			Rosario 2000	Argentina
* Div Laboratorio Quimico			Buenos Aires 1107	Argentina
* Departamento Drogas Peligrosas			Buenos Aires	Argentina
* Camara Federal de Apelaciones	Laboratorio Analitico Pericial		Rosario 2000	Argentina
* Tox Unit/Royal North Shr. Hosp	MacQuarie Hospital Campus		New South Wales	Australia
* National Crime Authority - Perth			West Australia 6000	Australia
* National Institute of Forensic Sciences	R & D Park Centre		Bundoora Vic 3083	Australia
* Division of Analytical Laboratories	Drug Section		Lidcombe NSW 2141	Australia
* Australian Federal Police	Computer Forensics Program			Australia
* Health Department Library			Hobart 7000 Tasmania	Australia
* Der Univ. Innsbruck	Inst. Fuer Gerichtl. Medizin		A-6020 Innsbruck	Austria
* For Sci Lab/Royal	Police Headquarters		Nassau N.P.	Bahamas

Office 1	Office 2	Misc.	City/Code	Country
Bah. Police				
* Ministry of Interior	Crim Invest. Dir/For Sci Lab			Bahrain
* Criminal Investigation Dept			Dhaka 1212	Bangladesh
* Barbados Ministry of Health	Forensic Chemistry Dept			Barbados (West Indies)
* Office of the Attorney General	Forensic Sciences Centre		St. Michael	Barbados (West Indies)
* Expert-Criminalistics Dept	Belarus Min. for Home Affairs		Minsk 220615	Belarus Republic
* Ministry of Internal Affairs	Forensic Centre		Minsk 220615	Belarus Republic
* Gerechtelijke Politie			Antwerp 2018	Belgium
* Institut d'Hygiene et D'epidemiologie			Brussels 1050	Belgium
* Gemeentepolitie			Knokke-Heist 8300	Belgium
* Police Judiciare			Mons 7000	Belgium
* National Forensic Services			Belize City	Belize
* Board on Misuse of Drugs			Hamilton	Bermuda
* Scenes of Crime Office	Police Headquarters		Prospect, Devonshire DV02	Bermuda
* De Advanas Assesor Quimico			La Paz	Bolivia
* Botswana Police Force	Forensic Science Laboratory		Gabarone	Botswana
* Instituto Nationale de Criminalistica Dept	Policia Sul		Brasilia	Brazil
* Inst. of Forensic Science	Ministry of the Interior		Sofia 1000	Bulgaria
* Cambodian Forensic Drug Laboratory	RSO - American Embassy/Phnom Penh		Phnom Penh	Cambodia
* St. Boniface General Hospital	Biochemistry Laboratory		Winnipeg, MB, R2H 2A6	Canada
* BAL Consulting				Canada
* Dept of National Health	Drug Research Lab		Ottawa	Canada
* Royal Canadian Mounted Police	Crime Laboratory		Vancouver, BC V5Z 3L7	Canada
* Pharmc Chem Div/Bur Drug Res	Health Protection Bureau	Tunney's Pasture	Ottawa, ONT K1A 0L2	Canada
* Chief Coroner Ontario			Toronto, ONT M7A 2G9	Canada
* Life Sciences Division		Tunney's Pasture	Ottawa, ONT K1A 0L2	Canada
* Laboratoire de Sci Judiciaires et de Med Legal	Ministere de la Securite Publique - Centre de Documentation		Montreal, Quebec H2K 3S7	Canada
* Maxxam Analytics	Health and Welfare Canada		Mississauga,	Canada

Office 1	Office 2	Misc.	City/Code	Country
			ONT L4Z 1P1	
Royal Canadian Mounted Police Forensic Laboratory			Winnipeg, Manitoba R3N 0E7	Canada
* Provincial Toxicology Centre			Port Coquitlam, BC V3C 4J2	Canada
* Laboratorio de Criminalistica de Carabineros de Chile			Santiago	Chile
* Laboratorio de Criminalistica Investigaciones de Chile			Santiago	Chile
* Universidad de Chile, Departamento de Quimica			Santiago	Chile
* The Criminal Police Inst of Shenyang			Shenyang	China
* Ministry of Public Security	Inst of Forensic Sciences		Beijing	China
* Toxi Sec/Beijing Inst of Tong Forensic Sci			Beijing	China
* Dept of Analytical Tox Ministry of Public Security			Beijing	China
* Liaoning Crim For Chem Sci & Tech Res Inst			Shenyang	China
* Lab Div of MJIB			Taipei	Republic of China
* Rech Inst/Security Bur of Pub Security & Tech Pub			Yunnan Province	China
* Forensic Science Laboratory	Municipal Pub Security		Shanghai	China
* Zhongshan Medical College	Dept of Legal Serology		Guangzhou	China
* DAS - Seccion de Laboratorio Forense			Bogota	Colombia
* Instituto Regional de Medicina Legal			Medellin	Colombia
* Dept Admin de Seguridad, Div Lab e. Identifi			Bogota	Colombia
* Div Criminalistica			Bogota	Colombia
* Lab de Estupefacientes			Bogota	Colombia
* Laboratorio Decypol			Medellin	Colombia
Inst Nacional de Medicina Legal y Ciencias Forenses	Coordinadora Laboratorio de Estupefacientes		Bogota	Colombia
* Ministry of Health			Raotonga	Cook islands
* Department of			San Jose	Costa Rica

Office 1	Office 2	Misc.	City/Code	Country
Forensic Science				
* Ministry of Public Health	Narcotic Drug Dept		San Jose	Costa Rica
* Corte Suprema de Justicia	For. Chem Sec/Forensic Sci Lab		San Jose 1003	Costa Rica
Ministry of the Interior	Forensic Institute		Zagreb 10000	Croatia
* Department of Toxicology	Laboratory of Public Health		Heelsunstraat Curacao	Netherlands Antilles
* Ministry of Health	Inspectorate of Narcotic Drugs		12801 Prague 2	Czech Republic
* Dept of Chemistry	Inst of Criminalistics		170 89 Prague	Czech Republic
* Aarhus Universitet	Drug Investigation Section		Skovagervej 2 DK-8240 Risskov	Denmark
University of Copenhagen	Institute of Forensic Medicine, Dept. of Forensic Chem.		Copenhagen	Denmark
* Palacio Policia Nacional	Laboratorio Criminologica		Santo Domingo	Dominican Republic
* Laboratorio Criminalistica			Quito	Ecuador
* Crime Detection and Forensic Science Dept	Natl Ctr for Soc & Crim Res		Cairo	Egypt
* Fiji CID Headquarters			Suva	Fiji Islands
* Prefecture de Police	Direction du Laboratoire de Toxicologie		Paris 2EME	France
* Prefecture de Police	Laboratoire de Police Scientifique		Paris 75001	France
* Laboratoire de Police Scientifique			Marseille Cedex 2	France
* Laboratoire de Police Scientifique			Marseille F- 13248	France
* Prefecture de Police	Service Documentation		59650 Villeneuve D'Ascq	France
* Laboratoire de Police Scientifique			F-31021 Toulouse Cedex 02	France
* Ministry of Justice of Georgia	Expertise and Special Research Centre		Tbilisi	Georgia
* Dept of Forensic Chemistry	Chemisches Untersuchungsamt		5800 Hagen 1	Germany
* Landeskriminalamt NW			4000 Dusseldorf 1	Germany
* Landeskriminalamt Baden - Wurttemberg	Landeskriminalamt/KTI-702		70337 Stuttgart	Germany
* Polizei Hamburg - Chemie/toxikologie	Landeskriminalamt Hamburg - IKA 32		22297 Hamburg	Germany
* Westf. Wilhelms-Universitat			48129 Munster	Germany
Landeskriminalamt Rheinland - Pfalz			D-55118 Mainz	Germany
* Landeskriminalamt			65183 Wiesbaden	Germany

Office 1	Office 2	Misc.	City/Code	Country
Hessisches				
* Landeskriminalamt Mecklenburg- Vorpommern	Kriminaltechnisches Institut		0-2711 Rampe II	Germany
* Bundeskriminalamt Wiesbaden			D-65173 Wiesbaden	Germany
* Universitat Tubigen	Pharmazeutisches Institut		Tubigen 1	Germany
* Ghana Police Service	CI Dept/HQs Crime Lab		Accra	Ghana
* Forensic Science Board	Ghana Standards Board		Accra	Ghana
* Lab & Clinical Pathology	Public Health Authority			Gibraltar
* Dept of Legal Toxicology	Univ Med		Thessaloniki	Greece
* Thessaloniki Regional Administration	2nd Chemical Service		Thessaloniki 54625	Greece
* Laboratorio da Policia	Forensic Laboratory	Judiciaria de Macau	Macau	Hong Kong
* Experts Institute			Budapest 62	Hungary
* Committee on pharmaceuticals			172 Seltjarnarnes	Iceland
* State Forensic Sci Laboratory		Manipur, Imphal	Pangei-795114	India
* Tamil Nadu Forensic Sci		Kamarajar Salai Mylapore	Madras	India
* Forensic Science Laboratory		Punjab	Chandigarh	India
* Central Forensic Science Lab	Ramanthapur, Amberpet P.O.	Mha	Hyderabad 500 013	India
* Govern Opium & Alkaloid Works			Chazipur Up	India
* Manipur State Police Forensic Science Lab		Yangdong - 795114	Imphal	India
* Forensic Science Laboratories	Govt of Uttar Pradesh	PO Mahanagar	Lucknow 226 006	India
* State Drugs Control & Research Laboratory	Govt of West Bengal		Calcutta 700 015	India
* Forensic Science Laboratory		Guwahati - 781019	Assam, Kahilpara	India
* Central Revenues Control Lab		Hillside RD/Iari P.O.	New Dehli 12	India
* Forensic Sciences Dept, Narcotics Division		Chepank	Madras 600 005	India
* Tripura State Forensic Sci Lab		Agartala, CID HQs		India
* State Forensic Sci Lab		Govt of Madhya Pradesh	Sagar MP	India
* National Inst of Crim & Forensic Sci			Rohini Dehli 110085	India
* Pusa Institute, Central Control Lab			New Dehli 8	India
Central Forensic Sci Lab	Bur of Invest			India

Office 1	Office 2	Misc.	City/Code	Country
* Govt Opium & Alkaloid Works			Neemuch MP	India
* Forensic Science Lab		Mizoram: Aizawl - 796001	Mizoram	India
Government of Bihar	Forensic Science Laboratory		Bihar	India
* Forensic Science Laboratories		Red Hills, Hyderabad	500 004 A.P.	India
* Indonesian Police Headquarters	Forensic Chem Div, Criminal Police Lab		Djakarta	Indonesia
* Department of Justice, Forensic Science Laboratory	Garda Headquarters	Phoenix Park	Dublin 8	Ireland
National HQ, Sheikh Jarrah	Intelligence Dept.			Israel
National Police Headquarters	Head, Interpol & Intl. Ops			Israel
National Police Headquarters	National Forensic Laboratory; National Police Headquarters			Israel
National HQ, Sheikh Jarrah	Div. of Ident. & Forensic Sci.			Israel
National Police Headquarters	Criminal Intelligence Dept. – Narcotics Control Board			Israel
Agenzia Delle Dogane	Lab Chimico di Roma	Responsabile Reparto Stupefac.	Rome	Italy
Commissario Straordinario	Politiche Antidroga			Italy
Direzione Centrale per i Servizi Antidroga	Centro di Documentazione			Italy
* Gab. Regionale di Pol. Scient.	Sezione Laboratorio Chimico		Firenze Cap. 50129	Italy
* Squadra Mobile Questura			Palermo	Italy
* Inst. Di Medicina Legale	Forensic Toxicology Lab		Terni 05100	Italy
* Seconda Univ. Di Napoli	Cattedra di Chim. Toss. Foren.		Napoli 80138	Italy
* Universita Degli Studi/Siena	Dipart. Di Scienze Medico-Leg.		Siena 53100	Italy
* Univ Degli Studi	Napoli Inst di Medicina		Napoli 5-80131	Italy
* Sottocentro Carabinieri	Investig. Scientifiche, Chemistry Section		Parma 43100	Italy
* Laboratorio Chimico	Centrale d Dogane e II.II		Rome 00153	Italy
* Livorno Chemical Laboratory	Agenzia Delle Dogane		Livorno 57100	Italy
* Laboratorio Chimico Provinciale			Rovigno	Italy
* Joint Research Centre, Environment Institute	Centro Comune di Ricerca		Ispra 1-21020	Italy
* Regional Forensic Office for Tuscany			Florence	Italy
* Centre Carrabinieri Invest.			Rome 511	Italy 00165
* Centre of Behav &	UNFDAC Collaborating	Instituto Medicina	Pado 35100	Italy

Office 1	Office 2	Misc.	City/Code	Country
Forensic Tox	Centre	Legale		
Ministry of National Security	Forensic Science Laboratory		Kingston 6	Jamaica
* Hyogo Prefectural Police Dept	Forensic Science Laboratory		Kobe 650-0011	Japan
* Kinki Regional Narcotics Control Office	Chuo-Ku		Osaka City 540-0008	Japan
* Asahikawa Headquarters Crime Laboratory	Hokkaido Police HQ		Hokkaido	Japan
* Hakodate Area Headquarters	Criminal Investigation Lab		Hakodate 040	Japan
* Fukuoka Prefectural Police	Forensic Science Lab		Fukuoka	Japan
* Maritime Safety Agency	Research Center		Tachikama, Tokyo	Japan
* Tokyo Metropolitan Police Department	Section of Analytical Drug	Criminal Investigation Lab	Tokyo	Japan
* Kitamin Prefectural Police Headquarters	Kushiro District Headquarters Hokkaido		Hokkaido 090-8511	Japan
* Hokkaido Prefectural Police Headquarters	Forensic Science Laboratory		Sapporo 060-8520	Japan
* Tokyo Customs	International Intelligence Office	Enforcement Division	Tokyo 135-8615	Japan
* Mie Prefectural Police Headquarters	Forensic Science Laboratory		Tsu Mie 514-8514	Japan
* Ministry of Finance	Central Customs Laboratory	Research & Planning Sect	Chiba-Ken 271-0	Japan
* Kanto-Shinetsu Dist Narc Contr	Ministry of Health and Welfare		Tokyo 153	Japan
* Ministry of Health & Welfare	Narcotic Div, Pharmaceu Bur		Tokyo 100	Japan
* Metropolitan Police Dept	Crime Lab		Tokyo 100	Japan
* Kang-Weon National University	School of Pharmacy	Dept. of Pharmacology	Chuncheon 200	Korea
* Nat'l Inst of Scientific Invest	Forensic Sci Sec		Seoul 122-020	Korea
Narcotics Analysis Division	Drug Evaluation Department	KFDA		Korea
* National Drug Law Enforcement Agency			Lagos	Nigeria
* National Guard of Rep. Latvia			Riga LV-1050	Latvia
* I.C.P.O. Interpol Latvia	National Central Bureau		Riga LV-1009	Latvia
Lebanon Internal Security Forces	Anti-Drug Bureau		Beirut	Lebanon
* Royal Lesotho Mounted Police	Forensic Science Lab		Maseru 100	Lesotho
* Ministry of Internal Affairs	Dept of Forensic Science		Vilnius	Lithuania
* Terengganu Branch	Department of Chemistry		Terengganu	Malaysia

Office 1	Office 2	Misc.	City/Code	Country
(Kimia)				
Department of Chemistry Malaysia			Jalan Sultan Azlan Shah	Malaysia
* University of Malta	Medical School, Pathology Department		Gwarda Mangia	Malta
* Police Forensic Sci Laboratory	National Laboratories Complex		Reduit	Mauritius
* Instituto Nacional de Ciencias Penales			Tlalpan 14000	Mexico
* Ministry of Internal Affairs	Criminalistics Center		Kishinev 277012.	Moldova Republic
* Ministry of Science and Technology	National Forensic Science Laboratory		Kathmandu	Nepal
* Ministry of Justice	Forensic Sciences Laboratory		Rijswijk, NL 2288 GD	Netherlands
* Bureau of Pharmaceutical Affairs			Curacao	Netherlands Antilles
* Pub Health Lab	Tox & Pharm Quality Control		Curacao	Netherlands Antilles
* National Poisons Centre	Otago Medical School		Dunedin	New Zealand
* IEHFS	Illicit Drugs and Alcohol Sect		Lower Hutt	New Zealand
* Fed Min of Health	Food and Drug Administration	Central Lab Serv	Oshodi Lagos	Nigeria
* Nigeria Police Forensic Science Laboratory	'D' Department Force CID		Lagos	Nigeria
* National Chem Laboratory			Lagos	Nigeria
* Central Laboratory, Oshodi			Ikeja	Nigeria
* Office National des Produits	Pharmaceut. Et Chimiques		Niamey	Niger
* Norwegian Customs Laboratory			Oslo 0032	Norway
* National Institute of Forensic Toxicology	Statens RettstoksikoloGiske Institute		Oslo 0105	Norway
* National Institutes of Health	New Drug Control Division		Islamabad	Pakistan
* Science Forensic Laboratory	Policia Tecnica Judicial		Panama 1	Panama
* Depart de Narc Minis del Inter			Asuncion	Paraguay
Philippines Public Safety College	National Criminalistics Research & Training Inst		Fort Bonifacio	Philippines
* National Bureau of Investigation			Davao City 8000	Philippines
* Institute of Psychiatry & Neurology	Neurochemistry Department		Warsaw	Poland
* Observatorio Europeu da Drogas da Toxico	Centro de Documentacao		Lisboa 1100	Portugal
* Policia Judiciaria			Porto 4200	Portugal

Office 1	Office 2	Misc.	City/Code	Country
* Ministry of the Interior	Forensic Science Center		Moscow 123060	Russia
* Ministry of Commerce	Quality Control and Insp Dept		Riyadh 11162	Saudi Arabia
* Forensic Lab			Riyadh 11572	Saudi Arabia
* Forensic Labs/Arab Security	Studies & Training Center		Riyadh 11452	Saudi Arabia
* Central Narcotics Bureau			Singapore 169036	Republic of Singapore
Health Sciences Authority	Centre for Forensic Sciences	Narcotics Laboratory	Singapore 169078	Republic of Singapore
National Blood Center	Institute of Science and Forensic Medicine	Dept of Scientific Services	Singapore 169078	Republic of Singapore
* Kriminalisticky a Expertizny Ustav	Policajneho Zboru		Bratislava 831 06	Slovakia
* Ministerio de Defensa	Laboratorio de Referencia/Dragas de Abuso		Madrid 28012	Spain
* Ministerio de Justicia	Instituto Anatomico Forense, Palacio de Justicia		Cartagena	Spain
* Dir Gen de Seguretat Ciutadana	Mossos d'Esquadra Lab Analit.		Barcelona 08018	Spain
* Centro de Farmacia del Aire. Madrid	Laboratorio de Toxicologia		Getafe 28021 (Madrid)	Spain
* De Policia Nacional/Servicio	Central de Estupefacientes		Madrid 2828014	Spain
* Dir Gen de Aduanas	Lab Central de Aduanas		Madrid 3	Spain
* Serv. Centr. de Policia	Laboratorio Quimico		Madrid 28053	Spain
* Ministerio de Justicia	Inst. Nacional de Toxicologia		Madrid 28002	Spain
* Laboratorio. Area de Sanidad			Barcelona 08002	Spain
* Ministerio del Interior	Nacional Sobre Drogas	Delegacion del Gobierno para el Plan	Madrid 28001	Spain
* Catedra de Medicina Leg y Tox	Univ. de Murcia		Murcia	Spain
The Balearic Islands Laboratory of Drugs			The Balearic Islands	Spain
* Ministerio de Sanidad y de Vergara			Madrid 28006	Spain 28006
* National Dangerous Drugs Control Board			Colombo 1	Sri Lanka
* Government Analyst's Dept			Colombo 7	Sri Lanka
* National Dangerous Drugs Control Board	Narcotics Laboratory	National (W.H.O.) Consultant	Rajagiriya	Sri Lanka
* National Dangerous Drugs Control Board	Control Board		Rajagiriya	Sri Lanka
* Forensic Chemistry Lab			St. Thomas	Virgin Islands
* Ministry of Health	Central Laboratory		Paramaribo	Suriname
* Government of Suriname	Pharmaceutical Lab		Paramaribo	Suriname

Office 1	Office 2	Misc.	City/Code	Country
* Nat'l Inst of Forensic Chem	Univ Hosp	Div of Chemical Toxicology	Linkoping 581 85	Sweden
* Statens Kriminaltekniska	Laboratorium		Linkoping S 581 01	Sweden
* Swedish Customs	Analysis Division/Intelligence		Gothenburg S-404 85	Sweden
* Intercantonal Office for Control of Meds.	Swiss FDA		Bern CH3012	Switzerland
* Polizia d. Cantone Ticino	Polizia Scientifica		Bellinzona 6500	Switzerland
* Brigade de Stupeficants	Hotel de Police		1211 Geneva 8	Switzerland
Universite de lausanne	Institut de Police Scientifique et de Criminologie		Ch-1015 lausanne	Switzerland
* Institut fur Rechtsmedizin	Universitat Zurich, Chemisch-Tox. Abteilung		Zurich CH-8057	Switzerland
* University of Bern	Department of Clinical Research	Analytical Toxicology & Pharmacokinetics Unit	Bern CH-3010	Switzerland
* Royal Thai Police Department	Scientific Crime Detection Div		Bangkok 10330	Thailand
* Srinak Harinthwirot Univ	Dept of Chem/Fac of Sci		Bangkok 10110	Thailand
* Thailand Natl Police Dept	Scientific Crime Detect Sect		Bangkok	Thailand
* Bangkok Police Department	Sci Crime Section Laboratory		Bangkok 5	Thailand
* Narcotics Control Board	Phyathai District Board		Bangkok	Thailand
Narcotics Division	Department of Public Health		Nonthaburi 11000	Thailand
* Criminal Police Laboratory			Ankara	Turkey
* State Laboratory, Turkish Rep of N Cyprus	Devlet Laboratuvari.		Northern Cyprus, Lefkosa-Kibris Mersin-10	Turkey
* Ministry of Internal Affairs	Analytical Laboratory		Kampalla	Uganda
Imperial College of Sci Tech	Toxicology Unit	Charing Cross Campus	England	United Kingdom
Liverpool John Moores University	School of Biomolecular Science	Liverpool L3 3AF	England	United Kingdom
University of Central Lancashire	Centre for Forensic Sciences		PR1 2HE England	United Kingdom
* Cuerpo Tecnico de Policia	Div de Toxicologia Forense		Caracas	Venezuela
* Ministerio de Hacienda	Laboratorio de Aduanas		Caracas CSB	Venezuela
* Inst Univ de Policia	Cientifica/Avenida Neveri con Monte Socro/ Auyantepuy/Colina		Caracas	Venezuela
* Nacional Lab y			Caracas	Venezuela

Office 1	Office 2	Misc.	City/Code	Country
Archivo Central				
* Dept Analisis			Caracas	Venezuela
* Lab Toxicologia PTJ	Inst de Med Legal		Caracas	Venezuela
* Dept de Toxicologia	Facultad de Farmacia	Toxicologo Forense	ULA Merida	Venezuela
* National Guard (Venezuela)			Caracas 1020	Venezuela
* Forensic Science Lab			Causeway, Harare	Zimbabwe

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SELECTED REFERENCES

[Note: Selected references are a compilation of recent publications of presumed interest to forensic chemists. Unless otherwise stated, all listed citations are published in English. If available, the email address for the primary author is provided as the contact information. Listed mailing address information (which is sometimes cryptic or incomplete) exactly duplicates that provided by the abstracting services.]

1. Coyle HM, Palmbach T, Juliano N, Ladd C, Lee HC. **An overview of DNA methods for the identification and individualisation [sic] of marijuana.** Croatian Medical Journal 2003;44(3):315. [Editor's Notes: Presents a short review of the title topic. Contact: Division of Scientific Services, Connecticut State Forensic Science Laboratory, 278 Colony Street, Meriden, CT 06451.]
2. Jimeno ML, Alkorta I, Cano C, Jagerovic N, Goya P, Elguero J, FocesFoces C. **Fentanyl and its analogue N-(1-phenylpyrazol-3-yl)-N-[2-phenylethyl]-4-piperidyl]propanamide: H-1 and C-13 NMR spectroscopy, X-ray crystallography, and theoretical calculations.** Chemical and Pharmaceutical Bulletin 2003;51(8):929. [Editor's Notes: The oxalate salts and free bases of the title compounds were analyzed by the title techniques. Contact: N Jagerovic, CSIC, Inst Quim Med, Juan Cierva 3, E-28006, Madrid, Spain.]
3. Baeyens WRG, VanderWeken G, Smet E, GarciaCampana AM, Remon JP. **Comparison of morphine and hydromorphone analysis on reversed phase columns with different diameters.** Journal of Pharmaceutical and Biomedical Analysis 2003;32(4-5):913. [Editor's Notes: Presents the analysis of the title compounds by HPLC on 2, 3, and 4 mm i.d. RP columns with UV detection. Contact: WRG Baeyens, State Univ Ghent, Fac Pharmaceut Sci, Dept Pharmaceut Anal, Lab Drug Qual Control, Harelbekestr 72, B-9000, Ghent, Belgium.]
4. Hosztafi S, Noszal B. **Determination of morphine and its derivatives, by means of luminescence analysis.** Acta Pharmaceutica Hungarica 2002;72(3):191. [Editor's Notes: A mini-review of the title topic. Contact: ICN Magyarorszag Rt., 4440 Tiszavasvari, Hung.]
5. Cabovska B, Norman AB, Stalcup AM. **Separation of cocaine stereoisomers by capillary electrophoresis using sulfated cyclodextrins.** Analytical and Bioanalytical Chemistry 2003;376(1):134. [Editor's Notes: The title study is presented. Contact: Department of Chemistry, University of Cincinnati, Cincinnati, OH 45221.]

6. Lewis LD. **Method of disposing of hazardous wastes connected with criminal activity.** US 20030176756 A1 18 Sep 2003, U.S. Pat Appl. Publ. CLASS: ICM: A62D003-00. NCL: 588213000. APPLICATION: US 2002-100325 18 Mar 2002. [Editor's Notes: Presents the use of a portable incinerator (however, only selected waste materials are suitable for destruction). Contact: USA (no further contact information was provided).]
7. Makarov SA, Simonov EA, Makarov VG, Kozlov AS. **Method for determination of narcotic, psychotropic and offensive substances of plant and synthetic origin.** Russ. RU 2,205,385 (Cl. G01N21/78) 27 May 2003, Appl. 2,002,103,845, 18 Feb 2002. [Editor's Notes: Appears to present a narcotics test kit (abstract is not clear). This patent is written in Russian. Contact: Russia (no further contact information was provided).]
8. Hu Y, Ning Z, Liu D. **Determination of pterostilbene in Dragon's Blood by RP-HPLC.** Yaowu Fenxi Zazhi 2002;22(6):428. [Editor's Notes: Presents the title study. This article is written in Chinese. Contact: Medical College of Chinese People's Armed Police Forces, Tianjin 300162, Peop. Rep. China.]

Additional References of Possible Interest:

1. Liau AS, Liu JT, Lin LC, Chiu YC, Shu YR, Tsai CC, Lin CH. **Optimisation [sic] of a simple method for the chiral separation of methylamphetamine and related compounds in clandestine tablets and urine samples by beta-cyclodextrin modified capillary electrophoresis: A complementary method to GC-MS.** Forensic Science International 2003;134(1):17. [Editor's Notes: Investigated compounds include methamphetamine, methcathinone, ephedrine, and pseudoephedrine. The focus is toxicology. Contact: Dept. of Chemistry, National Taiwan Normal University, 88 Sec. 4, Tingchow Road, Taipei, Taiwan.]
2. Jarman JL, Seerley SI, Todebush RA, de Haseth JA. **Semiautomated depositor for infrared microspectrometry.** Applied Spectroscopy 2003;57(9):1078. [Editor's Notes: A novel method for depositing minute samples for IR microspectrometry is presented (the authors suggest applicability to forensic analyses). Contact: Department of Chemistry, University of Georgia, Athens, GA 30602.]
3. Wadler GI. **Future and designer drugs: Emerging science and technologies.** Performance-Enhancing Substances in Sport and Exercise 2002:305. [Editor's Notes: Presents a review of performance enhancing drugs, with a discussion of new developments. Contact: Clinical Medicine, NYU School of Medicine (no further addressing information provided).]
4. Persky AM, Hochhaus G, Brazeau GA. **Validation of a simple liquid chromatography assay for creatine suitable for pharmacokinetic applications, determination of plasma protein binding, and verification of percent labeled claim of various creatine products.** Journal of Chromatography B - Analytical Technologies in the Biomedical and Life Sciences 2003;794(1):157. [Editor's Notes: Includes the analysis of OTC creatine containing products. Contact: AM Persky, Univ N Carolina, Sch Pharm, Div Drug Delivery & Disposit, CB 7360 Kerr Hall, Chapel Hill, NC 27599.]
5. Qi ML, Wang P, Zhou L, Sun Y. **Simultaneous determination of four active components in a compound formulation by liquid chromatography.** Chromatographia 2003;58(3-4):183. [Editor's Notes: Describes a rapid and accurate LC method for determination of pseudoephedrine, acetaminophen, dextromethorphan, and diphenhydramine, in a compound

- formulation. Contact: ML Qi, Beijing Inst Technol, Sch Chem Engn & Mat Sci, Dept Chem, Beijing 100081, Peoples R China.]
6. Bicker W, Hebenstreit D, Lammerhofer M, Lindner W. **Enantiomeric profiling in ephedrine samples by enantioselective capillary electrochromatography.** *Electrophoresis* 2003;24(15):2532. [Editor's Notes: Presents a non-aqueous CEC method for ee analysis of ephedrine. Contact: M Lammerhofer, Währingerstr 38, A-1090 Vienna, Austria.]
 7. Libong D, Pirnay S, Bruneau C, Rogalewicz F, Ricordel I, Bouchonnet S. **Adsorption-desorption effects in ion trap mass spectrometry using in situ ionization.** *Journal of Chromatography A* 2003;1010(1):123. [Editor's Notes: Quadrupole mass spectrometers were compared for the GC/MS analyses of diazepam, alprazolam, triazolam, LSD, trimethylsilylated LSD, and trimethylsilylated buprenorphine. Contact: S Bouchonnet, Ecole Polytech, Dept Chim Mecanismes React, Route Saclay, F-91128 Palaiseau, France.]
 8. Bazylak G, Nagels LJ. **Simultaneous high-throughput determination of clenbuterol, ambroxol and bromhexine in pharmaceutical formulations by HPLC with potentiometric detection.** *Journal of Pharmaceutical and Biomedical Analysis* 2003;32(4-5):887. [Editor's Notes: The title analysis was performed using six different isocratic systems. Contact: G Bazylak, Univ Antwerp, RUCA, Dept Chem, Fac Sci & Biomed, Groenenborgerlaan 171, B-2020 Antwerp, Belgium.]
 9. Altun A, Golcuk, Kumru M, Jalbout AF. **Electron-conformational study for the structure-hallucinogenic activity relationships of phenylalkylamines.** *Bioorganic & Medicinal Chemistry* 2003;11(18):3861. [Editor's Notes: Presents a theoretical study of the topic. Contact: A Altun, Faith Univ, Dept Phys, TR-34900 Istanbul, Turkey.]
 10. Cottingham K. **Ion mobility spectrometry rediscovered.** *Analytical Chemistry* 2003;75(19):435A. [Editor's Notes: Presents a mini-review of IMS, focusing on potential applications in proteomics. Includes an overview of current instrumentation. Contact: No contact information was provided.]
 11. Tseng YL, Hsu H-R, Kuo F-H, Shieh M-H, Chang C-F. **Ephedrine in over-the-counter cold medicines and urine specimens collected during sport competitions.** *Journal of Analytical Toxicology* 2003;27(6):359. [Editor's Notes: Presents an analytical protocol using GC/NPD and GC/MS. Compounds include ephedrine, pseudoephedrine, phenylpropanolamine, and methylephedrine. 91 OTC medications were analyzed. Contact: Institute of Pharmacology and Toxicology, Doping Control Center, Tzu Chi University, Hualien, Taiwan.]
 12. van Zundert M. **Travel-pills, ecstasy pills, or Grandma's heart-rhythm pills?** *Pharmaceutisch Weekblad* 2002;137(51/52):1825. [Editor's Notes: Appears to be a conversational overview presenting the use of TLC and GC for the identification of unknowns at a Dutch emergency pill identification lab. This article is written in Dutch. Contact: Netherlands (no further contact information was provided).]
 13. Mortier KA, Dams R, Lambert WE, De Letter EA, Van Calenbergh S, De Leenheer AP. **Determination of para-methoxyamphetamine and other amphetamine-related designer drugs by liquid chromatography/sonic spray ionization mass spectrometry.** *Rapid Communications in Mass Spectrometry* 2002 16(9):865. [Editor's Notes: The focus is on biological matrices; however, the authors indicate potential use for analysis of tablets, powders,

or aqueous solutions. Contact: Laboratorium voor Toxicologie, Universiteit Gent, B-9000 Ghent, Belg.]

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THE DEA FY - 2004 STATE AND LOCAL FORENSIC CHEMISTS SEMINAR SCHEDULE

The FY - 2004 schedule for the DEA's State and Local Forensic Chemists Seminar is as follows:

December 8 - 12, 2003
February 9 - 13, 2004
April 19 - 23, 2004
June 14 - 18, 2004
September 20 - 24, 2004

Note that the school is open only to forensic chemists working for law enforcement agencies, and is intended for chemists who have completed their agency's internal training program and have also been working on the bench for at least one year. There is no tuition charge for this course. The course is held at the AmeriSuites Hotel in Sterling, Virginia (near the Washington/Dulles International Airport). A copy of the application form is appended onto the October 2003 issue of *Microgram Bulletin*, and should be mailed to the Special Testing and Research Laboratory (Attention: Pam Smith or Jennifer Kerlavage) at: 22624 Dulles Summit Court, Dulles, VA 20166. For additional information, call 703 668-3337.

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EMPLOYMENT OPPORTUNITIES

1. Broward County Sheriff's Office (BSO)

(Third and Final Posting)

Position: Crime Laboratory Manager

Location: Fort Lauderdale, Florida

Salary Range: To Be Determined.

Application Deadline: Open Until Filled

Duties: This position directs, administers and manages all forensic services functions for the BSO. Critical functions under charge include the Crime Laboratory, Automated Fingerprint Identification System (AFIS), and Latent Identification.

Employees in this classification maintain responsibility for the direction, and management of personnel engaged in latent and ten-print identification, audio/video enhancements, quality control/quality assurance, DNA analysis, firearms and tool mark identification, forensic chemistry, questioned documents examination, and trace evidence analysis.

Qualifications: A Master's degree in chemistry, biology, or another physical science is required; a Ph.D. is preferred. The position also requires ten years experience that includes advanced forensic chemistry, biology or criminalistics preferably in a large national, state or regional laboratory. Thorough knowledge of DNA processing and American Society of Crime Laboratory Directors (ASCLD) certification required; certification by the American Board of Criminalistics (ABC) preferred. Experience in a managerial capacity with responsibility for administrative aspects of the work strongly desired.

Application Procedures: You may view a detailed job description, download an application or apply on-line at: www.sheriff.org. A completed application and accompanying resume will also be accepted by mail: Broward Sheriff's Office, Human Resources Bureau, 2601 W. Broward Blvd., Fort Lauderdale, FL 33312.

EOE M/F/D/V DFWP

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2. Ohio University

(Third and Final Posting)

Position: Assistant/Associate Professor of Forensic Chemistry

Location: Athens, Ohio

Salary: [Not Listed]

Application Deadline: Open Until Filled

Duties: The Department of Chemistry and Biochemistry invites applications for a tenure-track position as an assistant/associate professor of forensic chemistry. We seek a chemist with postdoctoral or related experience and a research interest in forensic chemistry or related fields (toxicology, DNA typing, homeland security, etc.)

General Requirements: The successful applicant will be expected to have a Ph.D. in chemistry or a related field, and to establish a vigorous research program that will attract external funding. Candidates should be prepared to teach general chemistry as well as courses in their area of specialization at both the undergraduate and graduate (M.S. and Ph. D.) levels.

Application Procedure: Submit a curriculum vita, a research plan, a statement of teaching philosophy, and arrange to have at least three letters of recommendation sent to: Chair, Search Committee, Department of Chemistry and Biochemistry, Clippinger Laboratories, Ohio University, Athens, OH 45701-2979. Review of applications will begin on September 22, and will continue until the position is filled. Further information on the College of Arts and Sciences can be viewed at <http://www.cas.ohiou.edu> and on the position and the department at <http://www.chem.ohiou.edu> Minority and female applicants are especially encouraged to apply.

Ohio University is an Affirmative Action/Equal Opportunity employer.

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3. Bureau of Alcohol, Tobacco, Firearms and Explosives

(Second and Final Posting)

Position: Laboratory Chief

Location: Walnut Creek, California (Contra Costa County, San Francisco area)

Salary: \$101,351 to \$143,500, dependent on qualifications.

Application Deadline: November 25, 2003

Duties and General Requirements: The successful applicant should possess a B.S. degree in chemistry or other physical science. The position also requires passage of a background investigation and a top-secret clearance. The applicant will be measured against the following knowledge, skills, and abilities:

- * Knowledge of the forensic sciences and their application to law enforcement programs. (Prior experience supporting explosives, fire debris, trace evidence and/or firearm enforcement programs is desirable, but not required.)
- * Knowledge of the theory and practice of management and the ability to manage people, programs and the resources of a laboratory.
- * Ability to independently identify and solve problems.
- * Ability to represent ATF at all levels, including internationally; and to work with others to accomplish goals, routinely dealing with representatives from other venues with conflicting priorities.
- * Ability to communicate effectively in both scientific and managerial arenas, verbally and in writing.

Application Procedure: The full vacancy announcement (DPO-A03-027) and application materials may be found at: <http://jsearch.usajobs.opm.gov/summary.asp?OPMControl=110767>

Relocation expenses may be provided.

NOTE!: Due to problems in the personnel office, anyone who has previously applied for this position is advised to resubmit their application!

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Computer Corner

Measuring Employee Performance

#176

by Michael J. Phelan
DEA Digital Evidence
Laboratory

Fair and effective measurement of employee performance is an essential function of management. Formal performance measures articulate productivity norms and quality expectations. In forensic laboratories, performance measures are particularly important if there are large examination backlogs (as is typically the case at the present time). Large backlogs foment a crisis attitude, and can easily lead to rushed examinations, cursory reviews, and eventually acceptance of substandard work. Even without such problems, however, there is always the requirement to determine that the examiner's work product is thorough and meets the laboratory's standards with regard to sufficiency of examination.

The subdiscipline of digital evidence, while still relatively new to the forensic science community, shares a strong interest in developing performance criteria that are accurate, easy to implement, and encompass both qualitative and quantitative measures.

Qualitative Measures

Qualitative measurement of an examiner's digital evidence examination can be assessed on two levels: **Means** and **Ends**. First, the interim tasks (means) that are common to all

examination activities can be reduced to a checklist and monitored. The list should include interim work product assessments that are part of the examiner's case notes. Examples of this type of qualitative measurement could include questions such as: Is the case folder properly organized (yes/no)?; Are the laboratory's standard forms thoroughly completed (yes/no)?; and Are there any factual errors such as incorrect serial numbers, computer/hard drive make and model information, or case number (yes/no)?

DEA has implemented an examination report checklist to document examiner's performance on each report of examination submitted for technical review. The use of clear evaluation criteria that can be answered with a simple yes or no answer has been accepted by the laboratory staff as both reasonable and objective.

However, a full qualitative measure of examiner performance must include an assessment of the end product. Inevitably, this part of the performance measurement process is subjective. Nonetheless, evaluation of an examiner's overall performance needs to be conducted. Ideally, such evaluations are conducted using published standards that

are contained in the laboratory's standard operating procedures or quality assurance manual. Basic ends type evaluation criteria should include factors such as: Thoroughness of the examination effort, an evaluation of the examination effort based upon the scope of the search warrant, and an understanding of the investigative information needs of the case. In most instances, this type of performance measure is best provided by supervisory laboratory management that is/are directly involved with the case management decisions regarding the examiner's level of effort.

Quantitative Measures

Quantitative measurements in a digital evidence laboratory can be exceedingly complex. The goal of all quantitative measures should be to identify measurement criteria that accurately reflect examiner work effort as well as productivity. The former is a measurement of resource inputs, such as examiner time, while the latter characterizes examination output, such as number of hard drives searched.

Comparison of qualitative measures of examiner performance is possible only when the examination activities are similar. For example, all DEA digital evidence examiners

can be compared to one another because they all perform highly similar activities, i.e., examination of computers seized in drug cases, which are analyzed according to the same laboratory operating procedures. In contrast, however, many state crime laboratories may have their examiners performing a wide variety of digital evidence examinations. In such cases, the scope of examination will significantly differ. For example, child exploitation, fraud, computer hacking, intellectual property theft, and capital crimes such as murder or kidnapping, will each have unique aspects which will require differing amount of examiner time. This is a proverbial “apples and oranges” comparison problem.

DEA has measured its examiner’s time input and exhibit completion rate for the last several years. The average DEA examiner analyzing drug cases utilizes 55 - 57% of their time performing evidence examination work. Another 10% of the average examiner’s time is spent in performing other essential enforcement related activities such providing on-site computer backup support to DEA investigative personnel, or providing court testimony. Collection of laboratory staff work hour activity facilitates assessment of how much work each individual examiner is performing. However, care must be taken to account for important collateral duty assignments that may impact on evidence examination time. Tasks such as method validation or technical training are legitimate

time-consuming activities, especially for senior staffers. Nonetheless, it is relatively straightforward for any individual examiner’s work hour allocation to be assessed by comparing an individual’s performance against the laboratory average.

Examiner output can be measured using the same technique. DEA has found that the average digital evidence exhibit (consisting of a computer hard drive, box of diskettes, zip disks, CDs and alike) takes approximately 37 work hours to examine. This average number has proven to be extremely stable over the last two years despite larger hard drive capacities encountered, because of the concurrent use of faster/better examination hardware and software. Utilizing a laboratory management information system (LIMS) to collect data permits individual examiner data to be compared to the laboratory average. Individual assignments can vary significantly and the amount of work hours expended will vary commensurately. For example, the time needed to process a box of 10 diskettes is minimal compared to the recovery of data from a network server. However, if all assignments are more or less distributed equally over time, then quantitative differences in examiner output can be discerned.

The collection of both qualitative and quantitative data is integral to effective examiner performance measurement. A LIMS must be in place to track

both resource inputs and work product outputs. It is important that comparisons among digital evidence examiners be fairly derived, and that measurable differences in performance be assessed for significance. All assessments must account for examiner collateral duty assignments, experience level, and training, before any substantive conclusions are drawn. Nonetheless, performance is measurable, and is essential for effective examiner assessment, for laboratory workload evaluation, and for budget planning purposes.

Questions or comments?
e-mail: mphelan@erols.com